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THE JOURNAL OF PHILOSOPHY

SCIENTIFIC METHOD AND THE CONCEPT OF EMERGENCE [1]

IN their theories of the relation of the mental and the physical most thinkers today seek to avoid both the Scylla of dualism and the Charybdis of reductionism. There then remain two possibilities, (*a*) that mental processes have emerged from a matrix of events that once was entirely non-mental, (*b*) that life and mind as we know them have developed within a world matrix that has always contained mental process in some form. Among thinkers who have insisted on scientific method in philosophy the former hypothesis is widely adopted. It is the aim of this paper to show that such a theory of emergence is not consistent with the strict demands of scientific method.

For a statement of those demands we shall go to those laid down by John Dewey in the similar case of logical theory. And it is the first of these that is crucial. "Whatever is offered as an hypothesis . . . must be of the nature of a *vera causa* . . . must possess the property of verifiable existence in *some* domain, no matter how hypothetical it is in reference to the field in which it is proposed to apply it." [2] My contention is that the hypothesis of emergence, in this form, does not state a *vera causa* (i.e., a verifiable type of causal process) in the sense required, and therefore should not be postulated by a philosopher claiming to adhere to scientific methods.

Supporters of the emergence hypothesis usually contend that nature is full of cases of emergence of new types of entity analogous to the alleged case of emergence of the mental from a world purely non-mental. Examples are pointed to particularly in cases of chemical synthesis and biological growth and adaptation. The relations of antecedent to consequent in these cases, it is claimed, constitute verifiable cases of emergence that defy reductionism. And if such emergence occurs demonstrably in these cases it is no breach of the demands of the *vera causa* to postulate the emergence

[1] Read, in part, at the meeting of the Western Division of the American Philosophical Association, University of Wisconsin, April 24, 1942.

[2] Dewey, *Logic: The Theory of Inquiry*, p. 3.

of the mental from the non-mental. The question is thus one of the justification of an analogy. Are the demonstrable instances of the emergence of new types in nature sufficiently like the alleged case of emergence of the mental from the non-mental as to justify the claim that this hypothesis of emergence states a *vera causa?*

It is customary today to describe the world of the natural sciences as a system of events, some relatively simple, some complex, comprising within themselves a system of simpler events. Any observable thing, animate or inanimate, is a complex system of events having a variety of observable characters, quantitative and qualitative.[3] Changes within the system, whether externally or internally caused, are correlated with changes in its observable characters, both as to quantities and qualities. And there is correlation between the quantitative and qualitative changes. Among inanimate things, causal relations seem to depend entirely upon their quantitative characters. Changes in quantitative character are correlated with changes in observable qualities and in causal relations with other things. The correlation between the quantitative characters of a thing and its qualitative characters and causal relations with other things seems to be fixed. It is this that forms the basis of all exact knowledge.

Emergence of new features in nature must therefore be regarded as either (*a*) the emergence of new *qualities* that are *correlated with* change in the quantitative characters of the series of events concerned, or (*b*) the emergence of new *consequents,* following upon changes in the environing events, i.e., of a *new thing,* a new system of events. I wish to show that the emergence of the mental from the non-mental can not be regarded as analogous to either type.

First, we must remember the necessity for distinguishing between the mere existence of a quality and the perception of it, i.e., that the *esse* of a quality is not *percipi.* The alternative is solipsism. For, in order that there should be *communication,* i.e., in order that one thing (or system of events) should be revealed to another, it is necessary that the perceiving should be something different from the quality perceived. Further, it is necessary, and for the same reason, that the perception of the characters of a thing should not be merely another quality of the thing the characters of which are perceived. Otherwise the perceiving thing could never perceive anything beyond itself. Thus, if the perception of a quality is itself a quality it must be a quality of some thing other than the thing perceived.

[3] The distinction between the quantitative and qualitative characters of a thing here replaces that of primary and secondary qualities.

But there is no reason to believe that the perception is a quality. It is not perceptible in the simple objective way that qualities are perceived. Further, it has characters of its own—the quantitative character of temporal duration, spatial location if not extension, and a long string of characters descriptive of value and effort. It is thus an event or system of events; and, like physical events, it is known by its characters.

Thus perception is a thing (a complex of events) that has certain unique observable characters of its own. And, in addition to these characters whereby we become aware of it in self-consciousness, it has another set of characters. But it has these in a different way; i.e., as objects. Physical events have their characters in the manner we call the relation of attributes to substantives. Mental events also have some characters related to them in the same way. But perception and other cognitive events have *as objects* characters of *other* events, attributes of other substantives.

Mental events also manifest a unique type of causal relation with antecedent mental events. This has been described as "mnemic causation"; i.e., the fact that mental occurrences depend in some respects upon past experiences, drawing on the experience of the past to affect the experience of the present in such a way as to arouse an anticipation concerning the future. Every perception contains such a causal relation within itself.

Mnemic causation is thus a unique mode of causation associated with the unique mode of "having" found in mental phenomena—the "having" of qualities and quantities as objects of a subject. Its effect is that the having of certain objects on one occasion affects the having of objects upon later occasions, causing differences in the degree of attention or inattention to present data and producing specific anticipation of future data. This connection is plainly observable in any continuous train of mental association, though, of course, as in the procession of physical events, causality is only observed as regular succession; and many of the links are hidden from direct observation. Also, as in the physical world again, observable activity is not continuous.

Our analysis of mental processes has thus brought us to see them as a distinctive train of events, not merely as a set of qualities added to the physical characters of events. The mental events have three definite features that distinguish them from those usually called physical: (*a*) they have a distinctive set of attributes describable as effort and value; (*b*) they have the characters of events other than themselves (including those of physical events) in the unique mode of the relation of object to subject; (*c*) they are inter-related by the unique causal relation described above as

mnemic causation. It is such a train of events that constitutes a mind and it appears in intimately integrated relation with the other train of events that constitutes a body, the integrated whole constituting a human individual.

Each person can trace back the mental series of events in his memory a certain distance, but its earliest stages are forgotten. So far as science can tell us it may have emerged at an early stage of the growth of the individual organism in which it appears; or it may stretch back through the germ plasm to the beginning of terrestrial life, through alternating stages of active change and quiescent continuity, manifesting its distinctive characteristics in greatly varying degree without any sharp distinction between the levels of life and mind. If it is not emergent it must go back through those same stages into the world matrix out of which distinctive organisms have been evolved.

Now we have already seen that the emergence of the mental is not analogous to the emergence of new qualities correlated with change in the quantitative character of a series of events (as happens in chemical synthesis) for the mental is not describable as a quality. Its distinction from the physical is not merely a distinction of quality or quantity, but a distinction in the mode of having qualities and the manifestation of a distinct type of causal relation associated with this different mode of having qualities. In brief, mental process is a distinct series of events, not merely a distinct quality. Is the appearance of the mental comparable then to any verifiable cases of the emergence of a distinct series of events?

Familiar examples of the emergence of a new series of events are to be found in chemical change, biological growth, adaptive behavior, and evolutionary development. But, as we have seen, the mere fact of new qualities does not make these familiar cases of emergence comparable to the alleged emergence of the mental from the non-mental. We must find a demonstrable instance of the emergence of events manifesting a distinct mode of causal relations and a distinct mode of having qualities.

When we face this issue it has to be admitted that nature provides no such instance. The description of causal continuity in purely quantitative terms through the whole range of chemical phenomena is so nearly complete as to justify the prevalent faith in the eventual complete reduction of chemical laws to physical and mathematical. It is therefore logically impossible to deny the possibility of the reduction of mental process to physical and at the same time to maintain that the emergence of the mental from the physical is merely analogous to the emergence of new

causal properties in the course of chemical change. When we turn to cases of emergence of the new at the biological level the problem is a little more complex. If physiological processes (including growth, adaptive behavior and evolutionary change) can be reduced to highly complex physical and chemical processes, then, of course, we have here no case of emergence comparable to that of the emergence of the mental from the non-mental, as posited by those who reject reduction of mental process to complex physical process. But, if physiological processes can not be reduced to complex working of the same laws of physico-chemical change operative in the inanimate world, it would at least show that nature is not limited to one kind of causal connection. However, it would not follow that the causal connections observed in growth and adaptation (so far as they are *not* reducible to physico-chemical connections) are not due to some antecedent factor of a non-physico-chemical nature, i.e., to some permanent non-physico-chemical feature of the world matrix. Nor does it follow that such an antecedent factor must be essentially different from feeling and other mental processes manifest throughout so much of animal life. The fact that we are not conscious of feeling as concerned in much of the physiological change in our bodies does not mean that there is no feeling operative there, for human consciousness is highly selective. Therefore, if we *must* postulate the emergence of the vital and mental as *both* distinct from the physical, the principle of economy of hypotheses would suggest that we identify them as phases of *one* new factor if we can. Certainly, the logical status of the theory of emergence is not improved by postulating two cases of its occurrence instead of one when both cases are equally undemonstrable.

There remains one other phenomenon which is sometimes pointed to as a demonstrable case of emergence of the mental from the non-mental. This is the familiar transition from unconsciousness to consciousness that takes place after every period of normal sleep. In answer to this argument we must first point out that awakening from sleep is not a case of the absolute beginning of a new series of mental events. The new state of consciousness is linked more or less completely by mnemic causation with antecedent states of consciousness and all sorts of sub- and semi-conscious feeling states. A mind is a series and system of mental events and, even if the series is broken by temporary periods of complete inactivity, its awakening is not the beginning of a series *de novo*. The case is therefore certainly not comparable to that which is postulated in the hypothesis of the emergence of mental events in a thing previously entirely non-mental. The nature of

the causal connection between the first mental events of the waking consciousness in the morning and those of the day before is obscure, but it is not a case of the beginning of a series of mental events without antecedent mental events somehow connected with it.

Further, the assumption involved simply begs the whole question at issue. In order to find a demonstrable case of emergence analogous to the emergence of the mental from the non-mental, and thus to justify the hypothesis that all mind is emergent, it claims that every case of *renewal* of consciousness is a production of consciousness *de novo,* without the effective operation of consciousness in any form as antecedent. But the legitimacy of any hypothesis that postulates any such thing is just the question at issue. This argument therefore moves in a circle.

The conclusion seems clear. So long as the distinction between the physical and the mental could be regarded as merely a distinction of qualities characterizing a common set of events, or as a distinct mode of relation between the characters of events, it was possible to think of the emergence of the mental in a world antecedently entirely non-mental as akin to the emergence of new qualities and forms in physics, chemistry, and biology. But when once the distinction between the mental and the physical is recognized as a distinction between two different series of events —one that has its characters only in the mode of substantive and attribute and its interconnections only as quantitatively determinable causal relations, and the other a set of events distinguished by the fact that it has characters also in the mode of subject and object and has connections of a mnemic character— then it becomes obvious that the physical world contains no process analogous to the alleged emergence of the mental from the non-mental. The hypothesis postulating such emergence assumes a process that is not a *vera causa* and should therefore be rejected by every philosophy claiming to adhere to scientific methods. An empirical world-view that rejects both dualism and reductionism must therefore accommodate itself to the conclusion that life and mind as we know them have developed within a world matrix that has always contained mental process in some form, the mental being, not consequent and dependent upon the physical, but coördinate with it in an integrated organic unity.

Such an organismic theory is not "metaphysical" in any sense that should be objectionable to empiricists. It is simply an historical hypothesis concerning the factors present in the world antecedent to the appearance of life and mind as we know them. As such it is a choice between two hypotheses that present a sharp disjunction. Either life and mind in some form were factors in

the world order antecedent to their appearance on earth, or they emerged within a world that was antecedently lifeless and mindless. We have shown that the adoption of the second horn of the dilemma is out of harmony with strict scientific method. Why, then, have so many empiricists preferred it?

Apart from the fact that false analogies (exposed in this paper) obscured the objections to the theory of emergence of the mental from the non-mental, the reluctance to accept the alternative has, I think, been due to three causes. First, it has been thought that the alternative requires the notion of a distinct mental substance to explain the gaps in continuity between mental processes; and this would involve a breach of the principle of the *vera causa* worse than that of the emergent theory. Secondly there is a fear that even the organismic hypothesis draws so sharp a distinction between the mental and the physical as to involve an ultimate dualism after all. Thirdly, there is a desire to avoid conclusions that might be suspected of not being thoroughly naturalistic. The first and second of these objections raise questions that certainly call for an answer. The third, in so far as it is more than a mere prejudice, will, I think, be satisfied with the answers to the other two.

The first of these questions may be stated as follows. If the connection between the consciousness of today and yesterday is not purely physical does this involve us in the postulate of a mental substance to tide over the break in continuity of mental process? The answer is that the break in mental process is more apparent than real. Consciousness is a matter of degrees, from the highly attentive explicit consciousness to a mere immediacy of almost undiscriminating feeling that entails no explicit memory, no capacity of recall, and is therefore to all ordinary intents and purposes equivalent to unconsciousness. That feeling still exists in conditions of deep sleep and coma is occasionally revealed through abnormal mental developments and special psychological methods. And the evidence from these cases is such as to suggest that in the living organism feeling never entirely ceases. What temporarily ceases is the active discrimination and integration of feeling that characterize the higher animal organisms. The probability is that there is continuity of feeling processes of at least some momentary and minimal sort wherever there is life. Feeling is an event responsive to the qualitative character of some other events; and if qualities such as color or pain are effective factors in the behavior of organisms, it must be through the feeling of these qualities. Thus feeling would seem to be the differentiating character of vital as against merely physical process,

for, as Dewey says, "one might even define the difference between an inanimate body and a vital and psycho-physical one by saying that the latter responds to qualities and the former does not."[4]

This omnipresence of some degree of feeling wherever there is life also suggests the answer to the second of our remaining problems, which may be stated as follows. If the mental and the physical are different kinds of events, and there is no transmission of energy from the one series to the other, then how can they be integrated and interact in the one organism? Have we not drawn the distinction so sharply as to involve ourselves, after all, in an ultimate dualism? The answer is that duality of process is not equivalent to duality of substance. A series of events that is characterized by quantitative and qualitative attributes and is interconnected by quantitatively determinable causal laws must be different from a series that has those same quantitative and qualitative characters as its objects and has a further and different set of attributes and a different set of causal connections. But though the two series are different it is not the case that they have nothing in common, like the two Cartesian substances. They are both *temporal* series of activities; they occur in the same *space;* and they have common *qualities,* though they have them in different ways. Obviously they have to some extent a common nature. It is therefore not surprising that where the second series of events occurs the former, without actual loss or gain of energy, should be found to perform its transitions of energy in a somewhat modified way. In the living cell, though all the discernible changes are physico-chemical, those changes occur with a difference. Synthesis and discharge of energy are strangely facilitated. And these differences in chemical process seem to be correlated with changes of feeling, especially the changes from feelings of appetition to aversion, and *vice versa.* If the events we call feeling and the events we call physico-chemical, in spite of their differences, have some nature in common this is not surprising. There is thus no ultimate dualism involved in recognition that the mental and physical are two different series of events; but rather, the recognition of the difference, and of their different modes of relation to common qualities, offers an illuminating solution of the whole psycho-physical problem.

It suggests that experience is produced by the interaction of two different series of operations or events that occur within the spatial continuum, and are operations or activities of that continuum. One of these series is that known to physics and de-

[4] *Experience and Nature,* p. 268.

scribable in purely quantitative terms. The other operation is a feeling response of the spatial continuum that feels both qualities and the shock of the quantitative changes occurring within it. Its activity consists of a concentration of attention upon these quantitative and qualitative changes in degrees varying from what we call attentive consciousness down to subconscious feeling. Within the spatial continuum all qualities may be regarded as omnipresent. But variations in the series of physical events have the effect of facilitating attention to some qualities rather than others. It is in this sense that a physical series of events "has" these qualities as attributes and "presents" them as *data* for experience; and the series of feelings or attentive activities "has" these same qualities and the quantitative characters of the events that present them, not as attributes, but as objects. The result is change in the content of experience. A series of localized acts of attention to qualities and to the shocks of an integrated series of physical events (a particular body) constitutes an individual life. Such a series is connected by mnemic causation so that the particular experience of the past affects the present outlook. The qualities presented (facilitated for attention) by the bodily processes, together with their quantitative characters as selectively attended to according to the habits of attention developed by the organism, present a selectively organized body of experience at any moment, having quantitative and qualitative distinctions and also the distinctions of past, present, and future that give it meaning. Such a series of attentive operations constitutes a finite individual mind and is only developed, so far as we know, in association with highly elaborated individual bodies. The extraordinary development and complex behavior of living organisms find their explanation in the interaction of the two series of operations, an interaction due to the fact that both are operations in and of the one universal spatial continuum, the activity of which constitutes time and the properties of which are permanent.

Our conclusion then is that an empirical approach to the problem of mind and matter must reject the theory of emergence of the mental from the non-mental and accept the organismic interpretation. Not merely man and the higher animal organisms, but the world in which they find themselves, are to be interpreted as, each in their own way, a single nature, manifesting complexity of process, within which two irreducibly distinct types of process (the mental and the physical) are functionally integrated in one organic whole. The life and mind of the human organism are an organic part of the life and mind of a world organism. But this conception of a cosmic life and mind must not be hastily

identified with traditional ideas of God. So far as any considerations advanced in this paper are concerned, it may be the case that the high development of life and mind attained by man is far in advance of its sources in the cosmos external to him. However, even this may be of importance. By offering a reasonable solution of the psycho-physical problem it may help to clinch the arguments against any form of reductionism. And by pointing to the roots of mind as reaching beyond the individual organism it may help us to arrive at an understanding of how and why the system of values that mind discovers also seems to have its roots in a structure that transcends that of the individual organism and that of the narrow aims of the particular community in which he lives.

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THE STATUS OF EMERGENCE [1]

THE doctrine of emergence, having passed through the stage of acute philosophic controversy, has become to a large extent a generally accepted view. Unfortunately it has not become an unambiguous view. In one sense it seems to amount to no more than the insistence that there are novelties in the world. If this is all that is intended, the doctrine is a corollary of evolutionary theory and there can be little doubt as to its truth. To take a simple case, color vision can have appeared in the world only with the development of animal life and there must have been a first animal capable of distinguishing, say, the color violet. There might be variations in the clarity with which violet is distinguished, but, allowing for such differences, the statement stands. This color of violet, in its purely qualitative aspect as it appeared to the primitive animal, must have been something new under the sun.

Color names are, of course, used in a variety of senses. They may indicate the quite subjective, sensuously perceived aspect of vision, the sense in which a philosopher might say that his present sense datum was red. Again, they may be used to indicate any subjective manifestation, regardless of its qualitative character, of a type of act of perception, as in the case in which one might define green as the color of grass. In this second sense, two people might have qualitatively different sensations and still both agree that they were seeing something green. Finally, color names

[1] Presented before the Eastern Division of the American Philosophical Association, Vassar College, Dec. 30, 1941, and revised.

may refer to physical correlates of color, as if one were to define violet as a vibration of about 0.0004 mm. wave length impinging on the retina. It is only in the first of these senses that novelty is clearly indubitable.

If belief in novelty were confined to this subjective aspect of experience, then there could be no question of its existence. In the hands of many writers, Alexander, Broad, and Morgan, to mention only a few, the belief goes much farther. Thus life itself, not merely what it feels like to be alive, is taken as a novelty. Novelties, moreover, are assumed to arise not everywhere, but merely at certain stages in the evolution of the world, and are designated as emergents, in contrast to resultants which involve no novelty. It is this more complex and fully developed theory of emergent evolution which we proceed to examine.

We may begin by noticing the sense in which the term "novelty" is employed in discussions of emergent evolution. It is clear, I think, that the sense of the term is not the sense in which automobile number 439,752 is new as it rolls off the assembly line. It is true that in one sense we are dealing with a new car, but, in the common phrase, since thousands of similar cars have been manufactured, the car is "old stuff." In more Aristotelian terminology, the form and matter of the car have only recently been conjoined and in this sense the car is new, but the form has often been found in other cars and in this sense there is no novelty. The latter sense, the sense in which forms are new, is the sense intended by emergent evolutionists. A Platonist might well object here that *per se* no forms or qualities are new and that the only novelty arises in the appearance of those forms in the sensible world. This contention need neither be affirmed nor denied, for the sense in which a Platonist might admit novelty is the only sense required for the doctrine of emergence.

Novelty, then, pertains primarily to the qualities of things and a quality may be said to be new if it was never before embodied. We may, of course, define a derivative sense in which things are new, namely, if they embody new qualities, but this is not the primary sense.

Not every occurrence of a new form is, however, a case of emergence. If a new universe, replete with qualities never before exemplified, were to appear *ex nihilo*, this would hardly be counted as a case of emergence. Again, to take a less fantastic example, imagine a universe which contained irreflexive relations and transitive relations, but, up to a given time, no relations which exemplified both characteristics. Imagine further that there were no asymmetrical relations. Suppose now a relation were to arise

which were both irreflexive and transitive. Since all irreflexive and transitive relations are of necessity asymmetrical, a new quality would be born into this universe; but even the most sanguine philosopher would hesitate to consider this a case of emergent evolution.

The crux of these exceptions seems to be that emergent evolution has to do with a causal situation. If one claims that life is a quality emergent from the inorganic, this is to claim that living organisms are brought into being by inorganic processes, though they are not explained by these processes. Again, to claim that mind is an emergent from living organisms, takes these organisms as the cause of mind, although in this case as well, the effect is inexplicable in terms of the cause. Aristotle has remarked that a chance event is one which is not the final cause of its efficient cause, even though the efficient cause does have a final cause.[2] In a rough parallel, one might say that emergence occurs where the formal cause of the efficient cause is inadequate to explain the formal cause of the effect. Again roughly, we have emergence where a new form appears and where the causes of the appearance are unable to explain the form.

This principle would explain why the cases cited above are not instances of emergence. In the universe arising *ex nihilo,* there is no causal relationship. In the case of the appearance of asymmetry, whatever causes explain the conjunction of transitivity and irreflexiveness are adequate to explain asymmetry, since it follows deductively from the other two.

It is because of the failure of one group of qualities to explain another that unpredictability in advance of the fact can be used as the criterion of emergence. If there is an adequate basis in one group of characteristics for the explanation of the second, the latter could be predicted in advance of occurrence. Again, after the occurrence of one group of qualities with another, their joint appearance can be generalized and so be made the basis of future predictions; hence, in general, where there is an emergent, there is unpredictability. The converse, however, is not true and not every unpredictable event or characteristic marks an emergent. Suppose a new planet were to appear in the solar system, and to appear either for no reason at all, through sheer chance, or to appear for causes which had been hitherto undiscoverable. Such an occurrence would surely be unpredictable, but it would not constitute a case of emergence, unless the planet presented novelty in the sense discussed previously.

[2] *Physics,* 196b, 30 ff.

With the exception just noted, however, unpredictability has been taken as the criterion of emergence, and here discussions of emergent evolution have been at their weakest, for unpredictability has been treated as a simple quality of events. Thus, we are told by Lloyd Morgan, among others, that when carbon and sulphur are combined, the weight of the carbon-bisulphide formed is predictable, but many of its other properties are not.[3] In view of the fact that the principle of the conservation of matter has been on a scientific footing for less than two centuries, it must be apparent that the weight of the compound, far from being inherently predictable, could have been predicted only recently. Since, moreover, the boiling points of hydrocarbons, which are *prima facie* just as mysterious properties as the characteristics of carbon-bisulphide, have been successfully predicted in advance of the synthesis of the compounds, predictability is seen once more to be relative to knowledge. Indeed, a moment's reflection must convince one that predictability, far from being a mere predicate, is at least a tetradic relation and we must say, not that quality *A* is predictable, but rather that quality *A* is predictable by person *B* on evidence *C* with degree of assurance *D*.

Once the dependence of predictability upon evidence is admitted, it becomes clear that unpredictability is not peculiarly the mark of the novel, but merely of what may be loosely called the logically unrelated. Any characteristic past, present, or future, not related to a given body of evidence would be unpredictable on that evidence. This independence of predictability and futurity, far from undermining the concept of emergence, however, rather permits a more exact formulation of it. We will indicate a kind of novelty which may be termed logical novelty and which is independent of any notion of time. In terms of this, we will be able to formulate the idea of emergence more precisely.

We may begin by noticing the way in which any characteristics are predictable on scientific evidence. This evidence consists in particular observations of relations of characters and these observations do not entail the prediction, but rather give rise, by inductive reasoning, to a theory which entails the prediction. For example, to return to the illustration used before, the combination of sulphur and carbon may be the cause of the occurrence of carbon-bisulphide, but a statement of the relevant properties of the elements, their atomic weights, molecular structure, and combining ratios by themselves afford no basis for any conclusions about the weight of the compound formed. Before any conclusion can be reached, the assumption of the conservation of mass is

[3] *Emergent Evolution*, p. 3.

required. Again, to take an example which appears to display emergence, the explosiveness of nitrogen chloride could hardly be predicted in advance of the fact on the basis of the properties of nitrogen and chlorine alone. Yet the explosiveness could easily be predicted from a knowledge of the properties of nitrogen bromide, nitrogen iodide, and a general knowledge of the halogens. More generally, the situation would appear to be this: only when we are dealing with the properties of relations as in logic and pure mathematics do qualities seem to be so related that the presence of certain ones of them guarantees and explains the presence of others. In physical cases the conjunction of characteristics is always empirical, *i.e.*, characteristics do not entail one another, but at most are found conjoined. Hence predictions can be made not on the basis of the characters themselves, but only when they are supplemented by hypotheses—and this applies equally to resultants and emergents.

Thus, the situation always involves a group of data, a, b, c, *etc.*, a system of logic, L, a context of accepted theory, T, an hypothesis, H,[4] and an occurrence of a characteristic, x, whose predictability is in question. In order that H may be an admissible hypothesis, it is requisite that, by the standards of L, H be compatible with T and that a, b, c, *etc.*, be consequences of H and T. In order for x to be predictable, it as well must be a consequence of a, b, c, H, and T. Assuming the logic, L, and the accepted theory, T, to be fixed, we may say that under these conditions, x is predictable on the basis of a, b, c, and H.

Unfortunately, the H which satisfies the conditions above is not, as a rule, uniquely determined. There may be several such, H_1, H_2, *etc.*, some allowing for the prediction of x and others not. If we wish to speak of the predictability of x on the basis of the data a, b, c alone, we must introduce some restriction on the hypotheses involved. Since the alternative hypotheses are assumed to be similar in respect to their relationship to other knowledge, some internal means of differentiating them must be found and the only such means seems to be the characteristic of logical simplicity.

We must introduce the assumption, then, that among all the alternative hypotheses, one is simpler than the others and we may then say that x is predictable on the basis of a, b, c, provided it is predictable on the basis of a, b, c, and the simplest H which will explain a, b, c.

With this much by way of preliminary, we may say that x is

[4] The term "hypothesis" must be understood throughout this discussion in a sense which makes prediction possible.

logically novel with respect to *a*, *b*, *c*, provided it is not predictable on the basis of *a*, *b*, *c*. No notion of temporal priority is implied in this concept of logical novelty; thus, relative to a description of points on a line in terms of between-ness, the characteristics of the line in terms of serial order are logically novel. Or, relative to Euclidean geometry, classical mechanics is logically novel. It should be observed also that there is no absurdity in supposing something logically novel actually to have been predicted. It would be agreed, I believe, that the outcome of the Michelson-Morley experiment is logically novel, relative to Newtonian physics. Yet it is conceivable that Newton might have explained his data by relativity physics, anticipating Einstein, and have predicted the outcome of this experiment. Such explanation would have been theoretically possible, but it would not have provided the simplest explanation of Newton's data, hence even though actually predicted, the results of the experiment would have remained logically novel.

In terms of this conception of logical novelty we may now formulate the concept of emergence more accurately. A characteristic is an emergent provided (1) it is logically novel relative to all previously exemplified characteristics, and (2) it is not merely a spatio-temporal characteristic. This latter requirement is inserted merely to rule out cases like that of the previously mentioned unexpected planet.

This more or less formal definition may be made clearer by considerations of the following sort: Imagine the simplest possible system of the world, or theory comprehensive enough to link together all the characteristics exemplified by nature to date. An emergent then is a characteristic whose appearance calls for a revision of this all-embracing system. More figuratively, an emergent halts reason in its attempt to map the cosmos. This halt need not be permanent, but may merely call for some re-drafting; yet in a universe in which emergence was the rule or in which every event involved emergence, rational thought could at best give a partial and inadequate account.

If the preceding account is correct and no characteristic is *per se* unpredictable, but is unpredictable only relative to some system, there arises the question: Is emergence a metaphysical concept or does it have epistemological significance only? We have argued that prediction occurs only in a nexus of explanation and that a variety of explanations of the same data is possible, on some of which the occurrence of a given quality would be predictable, on others not. In order to secure uniqueness of explanatory framework, it was necessary to have recourse to the hypothesis of a

simplest explanation in terms of which prediction might proceed. The problem resolves itself into the problem of the nature of logical simplicity. If simplicity is merely simplicity for a given individual, a given society, or even the human mind generally, then emergence would seem to be primarily of epistemological significance; if on the other hand, simplicity can be given some higher ontological status, then emergence takes on a metaphysical importance as well. Unfortunately, the notion of simplicity has been largely neglected in logical analyses and the following considerations do not pretend to be entirely conclusive.

In general, it seems, we call one hypothesis simpler than another when it involves fewer independent assumptions than the other but has the same explanatory power. Thus, in the *Almagest*, Ptolemy notices that he can explain the motion of the sun either by assigning to it motion on an eccentric circle, or by means of a deferent concentric with the earth and a single epicycle, the deferent and epicycle moving in opposite directions with equal angular velocities.[5] Ptolemy unhesitatingly chooses the former mode of explanation.[6] Since he recognizes that the two are mathematically equivalent, any choice between them must be based on grounds of simplicity. Presumably Ptolemy's reasoning was as follows: In the first explanation the only arbitrary elements are the diameter of the circle and the amount of its eccentricity. In the second, the size of the circles, the directions of their motions, and the coincidence of their velocities are all arbitrary. The first theory involving fewer arbitrary assumptions is therefore simpler and for the same reason is more likely to be true.

There seem to be two reasons, however, for not taking this notion of objective simplicity at its face value. First, the view presupposes that theories are literally true. It is, of course, correct that if one were fashioning an orrery on a cosmic scale and attaching the sun to it, it would be more likely that the sun's motion would come out as it has if the orrery were constructed according to the view that Ptolemy accepts. A more sophisticated view of theory, however, would attach literal truth only to verifiable consequences and regard theories merely as ways of obtaining this set of consequences. The number of assumptions going into the formulation of the theory would then be irrelevant. It should be noticed that the acceptance of this view of the function of theory does not involve acceptance of the entire pragmatic theory of meaning.

The other reason which makes it difficult to accept the notion

[5] Bk. III, sect. 3; Heiberg 219.

[6] Bk. III, sect. 4; Heiberg 232.

of an objective simplicity is harder to formulate. To illustrate the point, however, it is common in logical systems to find that a single postulate may be equivalent to two or more others without on the surface appearing any more complex. Since it does the work of a pair, it must somehow be a broader assumption than either of the pair whose place it takes. We are thus led to the notion of something which we might adumbrate as magnitude of assumption which seems to vary inversely with the number of assumptions. It is hard to see how there is any gain in simplicity by diminishing one of these factors at the expense of increasing the other.

Certainly no one can claim that the concept of logical simplicity is clear, and it may be that this entire analysis misses the point, but, on the basis of it, logical simplicity would appear to apply to the formulation of theories rather than to the theories themselves.

To sum up: Novelty clearly exists in the universe and may, indeed, characterize every event, but this does not entail a doctrine of emergence. Predictability is not a simple predicate and can not be used as a criterion of emergence except on the basis of some hypothesis, presumably the simplest hypothesis which accounts for previous characteristics. Emergence can be given a metaphysical status only if a similar status can be given to logical simplicity. Indications are that this is not the case and that emergence has to do with our knowledge only, but, in any case, the focus of discussions of emergence must be the concept of logical simplicity.

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BEAUTY AND THE WAR

IT is neither an escape nor an indulgence to give our attention to beauty and art at a time when a global war is raging in which our existence and everything giving it worth are at stake. The enemy does not make the mistake of underestimating the rôle of art which it diabolically perverts, nor the power of beauty which it violates on a cosmic scale. The followers of the great lie stage huge spectacles, and cunningly exploit the radio, press, and cinema. The theatrical effects of the *blitzkrieg* are played up even more strikingly: the parachutists leaping from the skies, the shrieking whistles of the stuka bombers, fake representations of boats and submarine periscopes and all the other contrivances of

deception and demoralization. The neurotic cravings of the frustrated house painter, Adolf Hitler, and his accomplices will not be satisfied until the whole world canvas is smeared with their obscene scrawl, and entire peoples are twisted into inhuman shapes or blotted out.

We have had the esthetics of idealism and materialism in their many varieties, with their different versions of beauty and art, made to fit into the procrustean beds of these systems. Beauty and art, they held in turn, were the sensuous embodiment of the idea—an absolute which progressively sank lower into the state, class, race, folk, blood, and soil. Anything that promotes life is beautiful, they proclaimed, life narrowed into the survival of the fittest, the class struggle, power, sexual strivings, the unconscious; or life widened into the buzzing confusion of contradictory values and disvalues they happened to favor at the time. Following an immanent logic which worked itself out over the last few centuries, the so-called esthetics of life turned into its opposite, the esthetics of death. This dialectic which it would be interesting to trace in detail has been illustrated unwittingly by the saying of the fascist philosopher, Gentile, that "true life is made one in death."

Shameless artists have not been found wanting to express this ideology. The Italian fascist, Marinetti, one of the more blatant ones, provides the following specimen:

> War is beauty
> because it realizes the mechanical man
> perfect with the gas mask
> the terrifying megaphone
> the flame thrower
> or enclosed in the armoured car
> which establishes the domination of
> man over the machine.
>
> War is beauty
> because it commences the
> metallization of man
> of which we used to dream.

The dehumanization of man into an unfeeling, unthinking mechanism is not a novel aberration sprung from the disordered brain of Marinetti. Long before it broke into violent action, this monstrous caricature was hatched by thinkers and artists whose responsibility it was to keep alive the true image of man in the minds and feelings of men.

The pleasures of the "metallized" man of the Axis order, which offers only nothingness and death though it disguises itself

cunningly and breeds false illusions, are described by Mussolini's son, Vittorio, for whom also "war is the quintessence of beauty":

> We arrived upon them unobserved and immediately dropped our loads of explosives. I remember that one group of horsemen gave me the impression of a budding rose as the bombs fell in their midst. It was exceptionally good fun.

Along with his load of explosives, Vittorio Mussolini carried the germs of esthetic thought which go back through Croce, Klages, Nietzsche, and many other such lesser thinkers of Italian, German and various other nationalities, as far back at least as Kant's *Critique of the Power of Judgment*. The deniers of the true nature of beauty and art on the lofty heights of thought share in the guilt of the bloody realization of these denials in the field of action. It would be easy to throw the blame completely on other thinkers, on history, social and economic conditions and what not. The more honest and difficult thing to do, especially under the impact of the blows striking at the foundations of our civilization, is to examine our own philosophical consciences, and to ask ourselves some disturbing questions. Are not we, too, the defenders of beauty and art on the level of principles, partly responsible for their betrayal?

On what philosophical grounds can we oppose Vittorio Mussolini's "exceptionally good fun" at the sight of torn human and animal flesh exfoliating like roses in the Ethiopian sunlight? Does not this "good fun" follow with an implacable logic, as implacable as a bomb following the law of gravity, if beauty is regarded as only a name for the pleasure we feel, as merely subjective, a quality projected or imputed by the mind, and having no reference to things, no foundation whatsoever in existence? Is it not further the logical consequence of the fatal separation of beauty from reason, both of which in turn were torn asunder from morality by the methodical bachelor from Koenigsburg in the *Critiques of Pure and Practical Reason* and the *Judgment of Taste*, which all his injections of Rousseauean feeling could not put back together into any kind of wholeness?

The critical philosophy, unfortunately, was not critical enough, and the only remedy is to advance further in critical consciousness beyond its still-born subjectivity cut off from reality. The bitter failures in the history of esthetics are there to show that the starting-point can never be any subjective, *a priori* principle from which a closed system is deduced. Such an inverted procedure must always end disastrously. Yet the lesson may be missed if the history of esthetics is regarded as the succession of the corpses of different systems, one cancelling out the other, and ending as a

recent work put it, "As Heraclitus said of day and night, they are one." The failures and successes of the great thinkers who grappled with the problems of beauty and art, especially those who had an original contact with beauty, and fresh insights into its mysterious depths, can certainly be helpful. They can not be a substitute for the only valid starting-point which should be the experience itself of beauty in any of its multiple realizations.

Does not the fact that beauty is attributed to some objects and not to others point to the presence of an objective, independent quality possessed by them in their own right and eliciting a response from the subject? The infantile self-pleasure, even castigated scientifically by certain schools of psychology, of an autoerotic self indistinguishable from things without, and seeking to swallow them up introjectively, or to dominate them projectively, is an arbitrary mental construction which belies the facts. If one is not closed by a preconceived notion, but is properly open, does not the experience of the beautiful give us a transparent awareness of a vital interchange between the self and other, both standing out in their distinct realness? Is this not the most elementary datum given irreducibly in the experience of the beautiful in any of its many forms?

The beauty of a thing, to the degree that it possesses the reality of its own wholeness, harmonious confluence of parts or proportion, and radiance, keeps the self from intruding, and by thus compelling the self to remain in its own distinctness and reality elicits a response to it for its own sake. The self, paradoxically, comes into its own by forgetting itself before the thing's beauty seen and loved for its own sake. Only by being lifted out of itself and giving itself properly to the beauty of the thing, by losing itself, so to speak, does the self find itself and experience release and renewal, the joy and freedom which such self-surrender to beauty brings. United by beauty to otherness, the self is enriched not by feeding upon itself but upon the inconsumable beauty of things. Living the life of the other is not an escape from reality into a world of fantasy. On the contrary, it is an initiation into a deeper and wider kinship with unfamiliar realms of being, and also with the familiar, the freshness and strangeness of which have been obscured by custom and habit.

In esthetic cognition, which differs from the other fundamental ways of knowing, the scientific, philosophical, theological, and mystical, the self is integrated in a special way. Here, only a general characteristic will be pointed out. Esthetic knowing lovingly penetrates into the truths of the self and other selves, and the singular relations between selves and things. An esthetic truth

is not abstracted, disengaged, or considered apart from the thing in which it is realized, but is cognized affectively in the whole thing in which it presents itself, and is concretized in the whole man in his cognitive and appetitive powers with their accompanying emotions.

Though beauty is not truth, nor the good, each having its own irreducible essence, it is fatal to separate what is distinct yet organically linked in reality. To show their reciprocal interaction and vital synergy would require an elaborate philosophical analysis which can not be given here. At least this should be pointed out very rapidly in passing. The truth of things is seen; their beauty is seen and loved. Truth is the adequation of intellect and things: beauty is a joyful, lovable, reposeful, tranquil adequation. The good, too, as such, is lovable and delectable, but the beautiful is the lovableness and delectability of what is beheld and contemplated for its own sake. The good is enjoyable in fulfilling appetition. The beautiful delights by illuminating cognition, intuitively enjoyed without abstraction and the elaboration of concepts, though these may be germinally present. Beauty's kinship with truth and the good in no way diminishes or subordinates it. Rather is its vital importance known and loved for its own sake wherever it shines out in its fugitive or lasting expressions and calls for appropriate responses. Like truth and goodness, beauty can not be defined strictly speaking, because it is as wide and deep as reality itself and can not be restricted into a special category.

The objectivity of beauty and its vital connections with truth and goodness, which require a fuller philosophical justification than that allowed in this brief paper, have been confirmed time and again by the more articulate artists whose awareness in these matters is often much deeper than the professors who attempt to explain it from without, and who sometimes, alas, explain it away. The greater artists have often told us of their agonizing search for the right, objective forms, necessarily true and good, demanded by a certain matter, glimpses of which were slowly disclosed to them after patient and humble submission to inner and outer reality, the dazzling splendor of which was pursued through so many opacities and obscurities within and without. And do not their works bear even more eloquent testimony to this?

There has been so much learned nonsense about some of the simplest issues in esthetics that it is important to raise again some of the most elementary questions. Why do we listen to good music, read poetry and literature, attend the theatre, look at paintings, sculpture, architecture, the dance? Is it not simply because they are enjoyable for their own sakes and not for the

sake of something else? If we approach these not for their own sakes, but for the sake of something else, say for the sake of relaxation, consolation, knowledge, moral edification, or any of the other advantages associated with the arts, are we not defeating our own purposes? For only by responding to them for their own sakes and enjoying them as such will the tonic, energizing, and cultural benefits associated with the fine arts accrue to the self—to the self, it must be repeated, which has forgotten itself before their otherness, and has been lifted out of itself to their beauty. Of what use, then, are these beauty arts? Paradoxical though it may seem, they are of the greatest worth precisely because they are, strictly speaking, useless; they are not to be used but enjoyed for their own sakes.

Consider for a moment the case of the useful arts. The pottery, weaving, and the like, made by the primitives would have been just as useful had they not been made beautiful also. The only adequate answer to the question why they were made also beautiful, delightful merely to behold, can be: for no practical reason whatsoever, whether for magical or other purposes. Their beauty was created gratuitously. It was an outpouring of the superabundance of man's distinctly human powers no matter what the degree of their development, the mysterious depths of his spontaneity and freedom, and the incandescence of his intelligence and sensibility. To the degree that man is not tied down to the useful and devotes himself to such non-useful but most valuable activity as the free and disinterested creation and contemplation of beauty, man and his culture come into their distinctly human fruition. The apparently useless esthetic activity is one of the deepest sources of human life and culture, and if it be allowed to dry up, these would fade out and wither away.

Just as this planetary war is breaking down the last vestiges of an ingrained parochialism and making us conscious of the world as a whole in which we are intimately affected by any of its most distant parts, so too it should widen our esthetic consciousness. Beauty is not a superfluous sweet, a luxury product, a nonessential to be sacrificed in our all-out efforts to win the war. The importance of the arts in strengthening civilian and army morale, and building up national unity, should be fairly obvious. Considered more profoundly, the esthetic goes much deeper. Men will fight for their own lives and the lives of others, for the sake of many other things, the four freedoms, a better world, and other goods. In the last analysis, they stake their lives because the goodness of these things is made visible to them and their truth lovable by their intrinsic beauty, seen and loved for its own sake. Men will

defend the useful things of this world, certainly. But their hidden sources of energy surge up more fiercely in defence of the gratuitous things, without which life would have no worth, and would be a living death. Victory in our war for civilization would turn into the most bitter defeat, and, though won, our fight would indeed be lost if in the process we stop up the fountainhead of the underground deeps of man and his culture.

The esthetic, which brings the self and the other into unique human kinship, will play an important part in winning the war. It should play an even more important rôle in winning the peace, which can not be had without beauty. In this peace all the living in all their rich variety and difference should be united by beauty in the one family of mankind. The genuine new order, to be built after the false one is destroyed, will endure to the extent that its truth and goodness are made to shine out in beauty.

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BOOK NOTES

Philosophies of Science. ALBERT G. RAMSPERGER. New York: F. S. Crofts & Co. 1942. xi + 304 pp. $2.25.

Each new textbook in the philosophy of science testifies to the elasticity of the subject-matter. The present volume is comprehensive in range, but its discussions are brief and sometimes highly compressed, with the result that the many methodological problems involved in each topic can not always emerge. In compensation the treatment is clear and often provocative. The conciseness and brevity will no doubt prove popular with instructors who aim to use a text together with readings in the classics of the field. Starting with a contrast between the Democritean and Aristotelian approaches and a survey of the beginnings of modern science, Professor Ramsperger covers among other things problems of causality, induction, probability, measurement, and biological method, and concludes with a good discussion of the free-will-determinism issue and human values in science. The problems he treats most elaborately, however, fall within traditional epistemology, and a chapter on the theory of relativity serves as a means to the formulation of a general objective relativism. Concern with the latter is, at least in this reviewer's opinion, important; but justification for the amount of space it consumes is certainly controversial.

J. B.

Philosophy and Order. Proceedings of the American Catholic Philosophical Association, Vol. XVII. Seventeenth Annual Meeting. Washington, D. C.: Catholic University of America. 204 pp. $2.00.

The papers and summaries contained in this volume have for their common subject-matter the problem of Order; thus, Order in logic, Order in psychology, Order in politics, etc. The results, while a bit confusing, are suggestive. It is refreshing to see the problem of the "a priori" posed in a somewhat altered language. That this is the case is indicated by the fact that in most instances, Order, like the erstwhile "a priori," is seen to be a condition of criticism with respect to various types of particulars. The most interesting paper is, perhaps, the Annual Association Address, "Man's Image of Man," by Mr. Walter Lippmann. Mr. Lippmann's argument is that impulse and desire are amorphous, insatiable, vagrant; and that modern man, in closing his eyes to this fact, in reducing reason to a committee on ways and means, has conjured up a false image of man, reminiscent of the democratic soul in the ninth book of the *Republic.*

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The Church in the Social Order. A Study of Anglican Social Theory from Coleridge to Maurice. CYRIL K. GLOYN. Forest Grove, Oregon: Pacific University. 1942. 201 pp. $1.50.

Professor Gloyn has written an interesting and useful little book. It contains an account of four theories of the relation of the church to society which were widely expounded and criticized in England during the second quarter of the nineteenth century. The positions examined are those of Coleridge, the Tractarians, Thomas Arnold, and F. D. Maurice. The exposition of these views is prefaced by an account of the problems raised by secularism, erastianism, nationalism, and industrialism. It is argued that these problems were the occasion for the theories in question. The author holds that the intervening years have only accentuated these problems, and that an account of them is therefore pertinent to the contemporary scene. The value of his book does not depend upon the accuracy of that claim. His chapters contain much judicious quotation and a sympathetic presentation of men and doctrines. These very virtues in the book serve to disclose how different the second quarter of the nineteenth century was from, say, the second quarter of the twentieth. Nothing is gained, and something is lost, by recommending a history of the past on the

grounds that it deals with problems and doctrines which characterize the present. There is nothing sacred about the present. It is a kind of chronological snobbery to overlook the uniqueness of the past in an effort to disclose its "relevance to the present."

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Religious Crossroads. RADOSLAV A. TSANOFF. New York: E. P. Dutton & Co., Inc. 1942. xiv + 384 pp. $3.75.

The purpose of this book is to deal critically but also constructively with problems which religious experience presents to reflective thought (p. vii). The method pursued was to study the history of religions in order to gain an understanding of religion in its universal and essential aspects. The chapter headings are what one would expect in a historical survey of this sort and include the nature and definition of religion, beginnings of religion, religion and morality, nature and the supernatural, belief in God, idea of divine unity, grounds for belief in God, God's character and attributes, sin, salvation and atonement, religious conversion, prayer, mysticism, immortality, the problem of evil, and the ideal of divine perfection. The writer includes in his consideration various oriental philosophies, particularly in the chapters on religion and morality, the idea of divine unity, and mysticism. It is a relief to find a Western philosopher cognizant of Oriental ways of thought.

The position of the writer is that we should not search for one true religion so much as for the growing, self-renewing character of religion. It is the spiritual dynamics of life that we should seek out (pp. 361, 362). The thing that most matters is the inner spirit, the rest is shell or vehicle (p. 364). So the problem of religious crossroads is solved by taking flight above the physical dogmatic roads of choice into a realm of the inner spirit furnished with fatherly and brotherly love (p. 364).

The character and arrangement of the book make it very usable for classroom work.

K. P. L.

OTHER NEW BOOKS AND JOURNALS

Bonnet, Henri: The United Nations. What They Are. What They May Become. Chicago: World Citizens Association. 1942. 100 pp. 25 cents.

Davids, Mrs. Rhys, editor, with Introduction: The Minor Anthologies of the Pali Canon. Part IV, Vimāna Vatthu: Stories of the Mansions. Peta Vatthu: Stories of the Departed. Translated by Jean Kennedy and Henry S. Gehman, respectively. London: Luzac & Co. 1942. xviii + 250 pp.

Giles, Lionel: The Book of Mencius (abridged). Translated from the Chinese. (Wisdom of the East Series.) New York: E. P. Dutton & Co. 1942. 128 pp. $1.25.

Poffenberger, A. T.: Principles of Applied Psychology. New York and London: D. Appleton-Century Company. 1942. xvi + 655 pp. $4.00.

Roy, S. C.: The Bhagavad-Gîtá and Modern Scholarship. Interpretations of the Bhagavad-Gîtá, Book I. London: Luzac & Co. 1941. xviii + 270 pp. 7/16.

JOURNAL OF SYMBOLIC LOGIC. Volume 7, Number 2. The combinatory foundations of mathematical logic: *H. B. Curry.* A system of axiomatic set theory. Part III. Infinity and enumerability. Analysis: *Paul Bernays.*

ETHICS. Volume LII, Number 4. Justice: *G. S. Whitby.* Individualism versus Individuality: *George Morgan, Jr.* The Values of Personal Association: *H. W. Wright.* Nicolai Hartmann's Theory of Virtue: *O. C. Jensen.* Experience and Value Judgments in Legal Philosophy: *Robert Neuner.* Discussion—The Social and Ethical Conceptions of Descartes: *Petru Comarnesco.*

MIND. Vol. LI. No. 203. Leibniz and the Logical Argument for Individual Substances: *J. W. Nason.* Some Recent Criticisms of Spinoza (II): *H. F. Hallett.* Reality: *J. Laird.* Discussion—Goedelian Sentences. A Non-Numerical Approach: *J. Findlay.*

PHILOSOPHY AND PHENOMENOLOGICAL RESEARCH. Volume II, Number 4. Phenomenology of Direct Evidence: *Herbert Spiegelberg.* The Logical Rules of Scientific Procedure: *Felix Kaufmann.* Nicolai Hartmann's Criticism of Kant's Theory of Knowledge: *L. W. Beck.* Fact and Value in Ethics: *Helmut Kuhn.* A Preface of Phenosemantics: *Philip Wheelwright.* Evolutionary Dialectic Rationalism: *L. O. Kattsoff.* A Certain Aspect of Bergson's Philosophy: *Philip Merlan.*

PHILOSOPHY. Vol. XVII, No. 67. Ideals and Practice (II): *Leonard J. Russell.* Sketch-Map of Human Nature: *Olaf Stapledon.* Friedrich Nietzsche: *F. C. Copleston.* Is Liberty Compatible with Organization? *J. E. Turner.* The Development of the Civilized Mind in the Ancient Civilizations: *John Murphy.* Learning from Experience: *E. S. Budden.*

PHILOSOPHY OF SCIENCE. Volume 9, Number 3. The Logical

Destiny of Data: *William Hester.* Basic Sentences and Incorrigibility: *Bruce Waters.* Vegetation as an Object of Study: *F. E. Egler.* The External World and Induction: *E. J. Nelson.* Habits, Instincts and Reflexes: *Paul Weiss.* The Scientific Outlook of Cézanne: *James Feibleman.* Remarks Concerning the Epistemology of Scientific Empiricism: *Gustav Bergmann.* Energy as the Basic Concept for a Unified Interpretation of Physical Phenomena: *S. F. Baldin.*

NOTES AND NEWS

TO THE EDITORS OF THE JOURNAL OF PHILOSOPHY:

(1) It is gratifying to find that Dr. Lavine's statement of the sociology of criteria [1] resembles on many points my own,[2] and hence surprising to find myself quoted at a point of disagreement. The logic of the disagreement is, however, the point of intellectual interest. Dr. Lavine's subtilization of the "absolute," around which all may be relativized but which is itself not so open to the sociologist, is logically defective and unsatisfactory. To *formalize* the notion of an absolute by making it "functional" will not "save" it from relativization. All norms "function"; indeed, this is all that their existence means. The problem is to ascertain the basis for distinguishing between functional norms which are open to sociological understanding and those that may not be; it is to ascertain if any one is not, and if so, to mark it off. This is a statement of the general problem from the standpoint of the sociological researcher, and from my own point of view this is the only interesting mode of statement.

(2) As I stated in my essay, and as Dr. Lavine reasserts, it is precisely the verificatory paradigms of a model of thought which may be open to social relativization. It does not carry the argument further one way or the other to say that the *functioning* of a norm constitutes it as "absolute." Of course, any norm functions as an "absolute" *within the accepted model of thought of which it forms a part.* It is its logical status when viewed within the larger field of the several models of thought which is at issue. Of course, things are "absolute" from the standpoint of the persons engaged. It is the standpoint with its norms that is at issue. Yet after commenting on my "unpardonable offer of a probability" and the "delights of dilemma," Dr. Lavine writes: "The absolute function of the norm [Which norm is meant?] makes possible the compatibility of a logical absolute with a thorough-going, unrestricted sociological relativization." Dilemma! The question which Dr. Lavine does not answer about her "absolute" is: How do I justify the model of thought whose verificatory paradigm is, from within this model, seen as absolute?

(3) How is Dr. Lavine's "absolute" established? After all, all she has said is that some norm is absolute because of the "normative function of cognitive elements" (p. 350). Does this mean that only norms which do

[1] "Sociological Analysis of Cognitive Norms," this JOURNAL, Volume XXXIX (1942), pp. 342–356, by Thelma Z. Lavine.

[2] C. Wright Mills, "Methodological Consequences of the Sociology of Knowledge," *The American Journal of Sociology,* Vol. XLVI (1940), pp. 316–330.

not function are open to relativization? (*a*) I should like to have such a norm designated since I am ignorant of its existence. As I have indicated above, all norms "function." (*b*) The position seems to contradict her admission of my point that norms are precisely one feature of models of thought that are open to sociological relativization and understanding. Or, if it does not contradict it, it leaves open the crucial question: How are we to determine which norm is "absolute" and which norms are not? In order to refute the "opposition," as she calls them, Dr. Lavine reasserts my point that norms are relativizable; in order to escape the so-called relativist circle, she erects an ersatz absolute. In both cases the basic question for any absolutism is left unsolved: What predicate marks off a functioning norm as absolute? The several distinctions drawn by Dr. Lavine between "different" norms are not used in any definitive handling of the problem at hand.

(4) Precisely the assumption of an absolute norm generates the so-called relativist circle, which Dr. Lavine would escape by projecting another, a subtilized "absolutism." Now again, the choice between absolute claims confronts us; if indeed the relativist is so inconsistent as to be forced into such an unhappy choice. The "way out" of the so-called circle of relativism is not by a counter-statement of the nature of the "absolute" (however attenuated) to the absolutism that generates the relativist circle, but rather by denial of any total "absolute" perspective and a statement of the problem of validity and truth *within* relativist terms. It has been my suggestion that this is logically possible (*a*) once one ceases to flee *from* the probability, perspectivism, and uncertainty which, in fact, characterize the world of discourse in which we now think, (*b*) once one approaches these characteristics positively, and (*c*) realizes, and this was one of the main burdens of my essay, the operative connections between actual inquiries and their norms. Once one sees the problem not as a philosophical puzzle but as a logical snarl blocking the domain open for sociological research and understanding, nothing logical stands in the way of a consistent relativism in this matter; and substantive effort along this way will continue to demonstrate its own possibility.

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